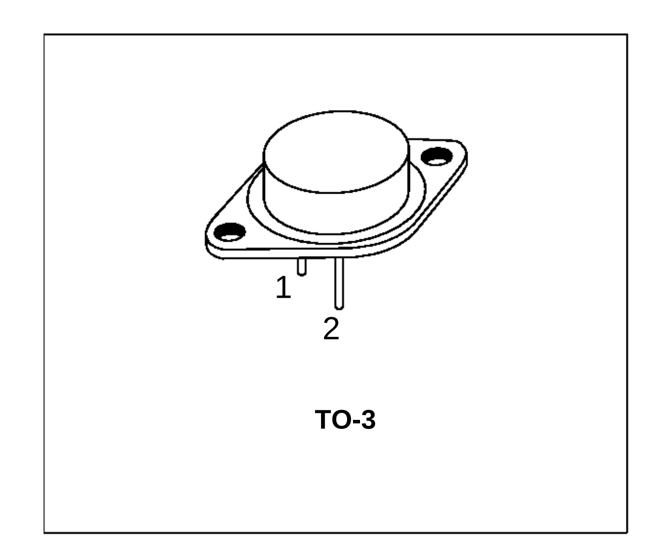


BUV60

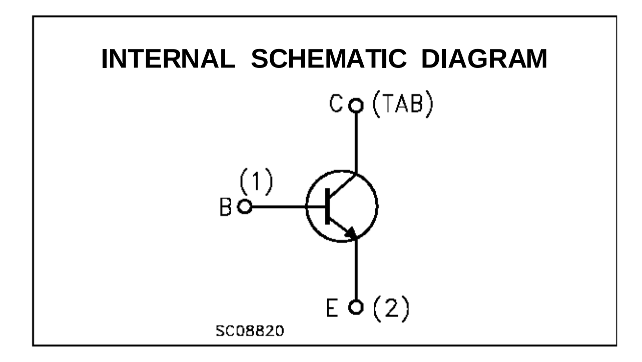
SILICON NPN SWITCHING TRANSISTOR

- SGS-THOMSON PREFERRED SALESTYPE
- FAST SWITCHING TIMES
- LOW SWITCHING LOSSES
- VERY LOW SATURATION VOLTAGE AND HIGH GAIN FOR REDUCED LOAD OPERATION



TO-3

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CEV}	Collector-emitter Voltage (V_{BE} = -1.5V)	250	V
V_{CEO}	Collector-emitter Voltage (I_B = 0)	125	V
V_{EBO}	Emitter-Base Voltage (I_C = 0)	7	V
I_C	Collector Current	50	V
I_{CM}	Collector Peak Current	80	V
I_B	Base Current	10	A
I_{BM}	Base Peak Current	18	A
P_{Base}	Reverse Bias Base Dissipation (B.E. junction in avalanche)	3	A
P_{tot}	Total Power Dissipation at $T_{case} \leq 25$ °C	250	W
T_{stg}	Storage Temperature	-65 to 200	°C
T_j	Max Operating Junction Temperature	200	°C

THERMAL DATA

$R_{thj\text{-}case}$	Thermal Resistance Junction-case	Max	0.7	$^oC/W$

ELECTRICAL CHARACTERISTICS (T_{case} = 25 ^oC unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CER}	Collector Cut-off Current (R_{BE} = 10Ω)	$V_{CE} = V_{CEV}$ $V_{CE} = V_{CEV}$ $T_c = 100^oC$			1 5	mA mA
I_{CEV}	Collector Cut-off Current	$V_{CE} = V_{CEV}$ V_{BE} = -1.5V $V_{CE} = V_{CEV}$ V_{BE} = - 1.5V T_C=100^oC			1 4	mA mA
I_{EBO}	Emitter Cut-off Current (I_C = 0)	V_{EB} = 5 V			1	mA
$V_{CEO(sus)}$*	Collector-Emitter Sustaining Voltage	I_C = 0.2A L = 25 mH	125			V
V_{EB0}	Emitter-base Voltage (I_c = 0)	I_E = 50 mA	7			V
$V_{CE(sat)}$*	Collector-Emitter Saturation Voltage	I_C = 25A I_B = 1.25A I_C = 50A I_B = 5A I_C = 60A I_B = 7.5A I_C = 25A I_B = 1.25A T_j = 100^oC I_C = 50A I_B = 5A T_j = 100^oC I_C = 60A I_B = 7.5A T_j = 100^oC		0.45 0.65 0.75 0.45 0.7 0.9	0.9 0.9 1.2 1.2 1.5 1.8	 V V V V V
$V_{BE(sat)}$*	Base-Emitter Saturation Voltage	I_C = 50A I_B = 5A I_C = 60A I_B = 7.5A I_C = 50A I_B = 5A T_j = 100^oC I_C = 60A I_B = 7.5A T_j = 100^oC		1.4 1.55 1.45 1.65	1.6 1.8 1.7 1.9	V V V V
di_c/d_t*	Rated of Rise of on-state Collector Current	V_{CC} = 100V R_C = 0 I_{B1} = 7.5A T_j = 25^oC T_j = 100^oC	 100 90	 160 150		 A/µs A/µs
$V_{CE(2\mu s)}$	Collector Emitter Dynamic Voltage	V_{CC} = 100V I_{B1} = 5A R_C = 2Ω T_j = 25^oC T_j = 100^oC		 2.5 3	 3 4.5	 V V
$V_{CE(4\mu s)}$	Collector Emitter Dynamic Voltage	VCC = 100V I_{B1} = 5A R_C = 2Ω T_j = 25^oC T_j = 100^oC		 1.8 1.9	 2.2 3	 V V

∗ Pulsed: Pulse duration = 300 µs, duty cycle = 2 %



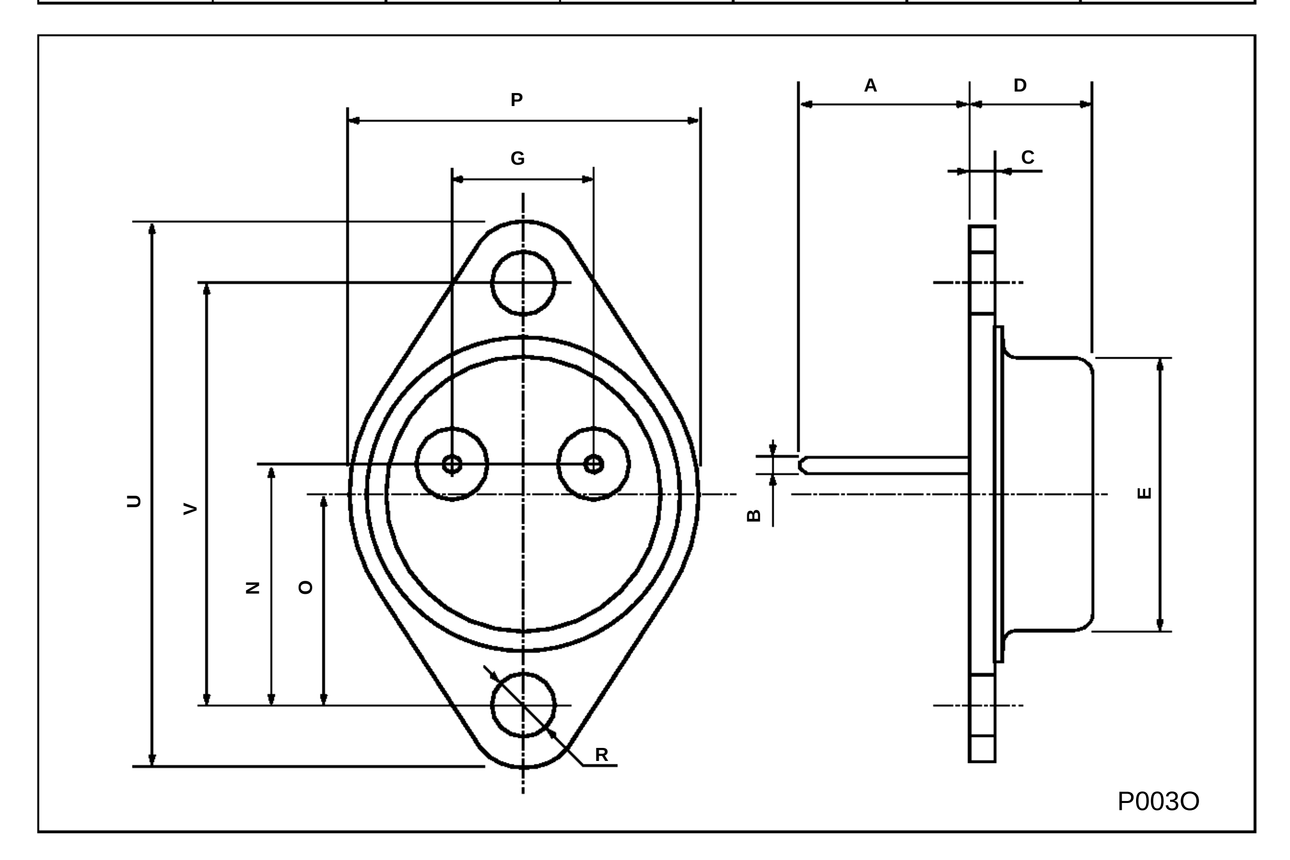
ELECTRICAL CHARACTERISTICS (continued)

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
t_r t_s t_f	**RESISTIVE LOAD** Rise Time Storage Time Fall Time	 V_{CC} = 100V V_{BB} = -5V R_{B2} = 0.33Ω	 I_C = 60A I_{B1} = 7.5A T_p = 30μs		0.5 0.6 0.06	0.8 1.1 0.2	μs μs μs
 t_s t_f t_t t_c	**INDUCTIVE LOAD** Storage Time Fall Time Tail Time in Turn-on Crossover Time	 V_{CC} = 100V I_C = 50A V_{BB} = -5V L_C = 0.1mH	 V_{clamp} = 125V I_B = 5A R_{B2} = 0.5Ω		 0.5 0.05 0.01 0.1	 1.2 0.15 0.05 0.3	 μs μs μs μs
t_s t_f t_t t_c	Storage Time Fall Time Tail Time in Turn-on Crossover Time	VCC = 100V I_C = 50A V_{BB} = -5V L_C = 0.1mH	V_{clamp} = 125V I_B = 5A R_{B2} = 0.5Ω T_j = 100°C		0.85 0.12 0.04 0.2	1.5 0.25 0.1 0.5	μs μs μs μs
t_s t_f t_t	Storage Time Fall Time Tail Time in Turn-on	V_{CC} = 100V I_C = 50A V_{BB} = 0 L_C = 0.1mH	V_{clamp} = 125V I_B = 5A R_{B2} = 1.5Ω		1.5 1.3 0.4		μs μs μs
t_s t_f t_t	Storage Time Fall Time Tail Time in Turn-on	V_{CC} = 100V I_C = 50A V_{BB} = 0 L_C = 0.1mH	V_{clamp} = 125V I_B = 5A R_{B2} = 1.5Ω T_j = 100°C		2.7 1.8 0.6		μs μs μs

∗ Pulsed: Pulse duration = 300 μs, duty cycle = 2 %

TO-3 (S) MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	11.00		13.10	0.433		0.516
B	1.47		1.60	0.058		0.063
C	1.50		1.65	0.059		0.065
D	8.32		8.92	0.327		0.351
E	19.00		20.00	0.748		0.787
G	10.70		11.10	0.421		0.437
N	16.50		17.20	0.649		0.677
P	25.00		26.00	0.984		1.023
R	4.00		4.09	0.157		0.161
U	38.50		39.30	1.515		1.547
V	30.00		30.30	1.187		1.193




SGS-THOMSON
MICROELECTRONICS